INFORMATICS INSTITUTE OF TECHNOLOGY

In collaboration, with

UNIVERSITY OF WESTMINSTER (UoW)

BSc/ BSc (Hons) in Computer Science

Final Year Project 2017/18

Project Initial Document

For

User Experience enhancement in Scrum

using Gamification elements

By

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Project Background

Introduction

In Software Industry, Rapid Iterative Production Prototyping (RIPP) is an idea that was concaved out of dissatisfaction with waterfall software design approach which often caused to produce outdated products or inefficient product by the time it is being released to the market. In order to achieve higher outcome James Martin, Arthur of Rapid Application Development stated the philosophy focused on quickness in using techniques like prototyping, Iterative development and Time boxing.

Even recently, Agile methodologies are showing a reasonable growth in adaptation in project management area. Mostly due to its RAD development foundation. Under Agile there are different types of Variations in adaptation/Methodologies. Such as; Scrum, Extreme Programming (XP), Crystal, Dynamic Systems Development Method (DSDM), Lean Development, and Feature-Driven Development (FDD). Each methodology has a unique approach while having the common vision and core values which is stated in Agile Manifesto.
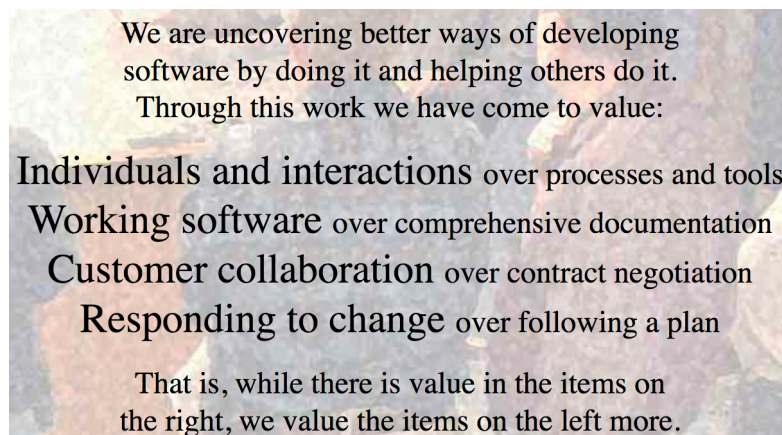

We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

Individuals and interactions over processes and tools
Working software over comprehensive documentation
Customer collaboration over contract negotiation
Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

Figure 1: Common vision stated in Agile Manifesto (Agilemanifesto.org, 2017)

All these methodologies contain continuous planning, continuous implementation, continuous testing. In other terms, continuous evolution in both software and project. Methodology which will be chosen by the team varies according to the requirement classifications in the project. Among such, Scrum methodology has shown most effective productivity against the uncertain requirements and in places where there is a large part of the figuring out certain parts in the software.

"The term scrum was introduced in a "*Harvard Business Review*" *article from 1986 by Hirotaka Takeuchi and Ikujiro Nonaka. It became a part of Agile when Ken Schwaber and Mike Beedle wrote the book*" Agile *Software Development with Scrum*" *in 2001*" (Westland, 2017). Scrum is a well define software development process under above mention qualities. But the Problem that the author focus on is, Experience which the developer happens to go

through in a Scrum. Even though theoretically it must be positive, there are occasions where developer undergo dissatisfactions due to certain qualities of the Scrum itself.

As an example; Since the product owner has the full authority in deciding which feature should be there and which should not be there, there occurs situations such product owner decided to remove a feature which the developers been developing for quite some time. At moments like this, Developer's frustration builds up. The author himself has being in a situation as such during his Industrial training period.

This Motivated the author to take this as a final year project problem as it's a requirement of BSc (hons) Computer Science. Also, author believes that using of proper gamification elements could be the solution for the user experience issues with in the Scrum methodology.

Define the Problem

Reduction of motivation and user engagement with-in developers due to uncertain decision by product owners and lack of resources within the company.

Project Rationale

As Scrum was there for some time, there are several occasions where Scrum has been modified into some other hybrid methodologies, such as Disciplined Agile Delivery (DAD). Which is to tackle the filling in the process gaps that Scrum purposely ignores.

But as per combined solution, which is using of Gamification Elements on Scrum, in order to boost productivity first came into play when "Davi Gabriel da Silva" who is certified Scrum Master put forward his idea on avoiding bad practices on Scrum using gamification elements. He explained that *"gamification is a living trend"* (Scrumalliance.org, 2017).

Gamification was initially introduced to the grab the attention of the customer and to boost the sales outcomes, in recent times almost every software which is built focusing the human interaction has somewhat of a gamification element included. Davi, further explained "*By the end of 2015, he predicts, more than 50 percent of organizations that have innovation processes will gamify them"* (Scrumalliance.org, 2017).

With saying that, purpose of the project is to, give out a positive experience for the developers who are practicing Scrum. To boost the enthusiasm and engagement of the developers which will then give out the productivity as a bi product. In modern days, work space enthusiasm is major concern as per retaining employees for a longer period of time. Which will support the upward progress of the company.

Problem Domain

As defined by the author, this system only consisted of user experience issues faced by developers in practicing Scrum methodology and Scrum methodology alone. Although there might be similarly methodologies which are somewhat similar with Scrum (methodologies such as Kanban, Agile or DAD) Author does not validate the User experience enhancement in a such system. Because purpose and the solutions is will be only tested under the Scrum methodology practices.

Although the project is more focused on the small-medium size companies where there are only few in the development crew and the resource management is mandatory. Applying the same solution to a large-scale company might not reduce any stability in the solution.

Persona 1

John is a dedicated Software Engineer who works hard. He was given a certain feature to develop in the project he was working on. John worked day and night to get this feature up and running. Most of the time John ended up fixing minor bugs and refining the feature which was given to him. Few days prior to the launch Product owner decides to remove the feature which John worked so hard.

In persona 1, John ends up with dissatisfaction as he ends up in a situation where he feels like he has not done anything productive throughout the project period.

Persona 2

Julia has been practicing Scrum for a long time and has been on a Scrum team for a long time. Due to lack of resources company wanted to move Julia from team A to team B, but the company does not have any trace of Julia's pass work within the company or how much of a match would Julia be for the Team B.

In persona 2, Company has to perform an action without any risk mitigation, as Scrum team perform well when the team member's personality traits are well synced.

So far for these types of questions, there is no such solution which is directly addressing these issue, but if existing popular project management systems like Atlassian JIRA, Trello or Microsoft Projects were taken into consideration, they do provide a good project management environment but never keeps historical data in order to produce a Curriculum Vitae (CV) of each team member about their performance.

Aim

To create a hybrid Scrum methodology, providing a gamified solution for the user experience issues in Scrum. Reduction of motivation and user engagement with-in developers due to uncertain decision by product owners and shuffling team members with other teams due to lack of resources within the company.

Scope

Inclusions

As core features;
System will only focus on Scrum methodology. System includes gamification elements in order to boost the engagement of developers who uses the hybrid Scrum methodology which is being put forward by the author. System gathers data of each developer who uses the system and perform an analysis in order to produce a CV, which includes, details of each member and his/her performance analysis. System will be developed as a web application, as it makes the cross-platform expansion much easy.

As other features;
System includes a browser plugin in order to make the system easy to access for developers.

Exclusions

System will not take other software development methodologies into account in terms of optimization as it will only be optimized for the Scrum methodology. Project is focused around the user experience enhancement in Scrum for developers and all the other enhancements which happens alongside will only consider as bi products.

System does not include a full pledge project management eco-system, but a prototype system which included all the feature in order to demonstrate the user experience enhancement.

Objectives

Research Objectives

- Gather information on different gamification mechanism.

  in order to produce the best user experience first task would be analyzing all the gamification mechanisms which have developed up till now and to choose which is best suitable for the Scrum methodology.

- Analyze the Scrum framework in depth.

  To apply gamification machines in the Scrum framework, knowing all the sensitive part in the framework is a must, and to avoid damages to the Scrum framework by any means.

- Analyze current software systems which is practicing Scrum methodology.

  There are several software's which practices Scrum framework (Atlassian JIRA, Bitrix24, Trello). Which include set of basic features which represent the core features of the Scrum. Analyzing which is necessary and which is additions is a must before producing a new system.

- Analyzing Gamification mechanism in depth.

  It is said that not every gamification mechanism will fit in with everything, It is necessary to do a survey to find out which mechanism will be the most appropriating to enhance the experience Scrum for the developer.

- Analyze existing systems with the gamification.

  In order to achieve the expected user experience, it's always a plus point to analyze the pros and cons in the existing system, which may or may not include gamification aspect.

- System comparison after the adaptation of the gamification elements.

  Checking the improvements and deteriorations of the system after the adaptations of the selected gamification mechanisms

- Produce a Scrum user profile.

  In order to make the member shuffling in between teams more compatible.

- Personal trait analysis of each user.

  Analysis of data in the user profile, in order to check the analysis, the compatibly of one user with another.

Common Objectives

- Project Initial Document
- Literature Review
- System Requirement Specification
- Interim Report
- Prototype
- Draft Report
- Final Report

List of Requirements

Functional Requirements
Non-Functional Requirements
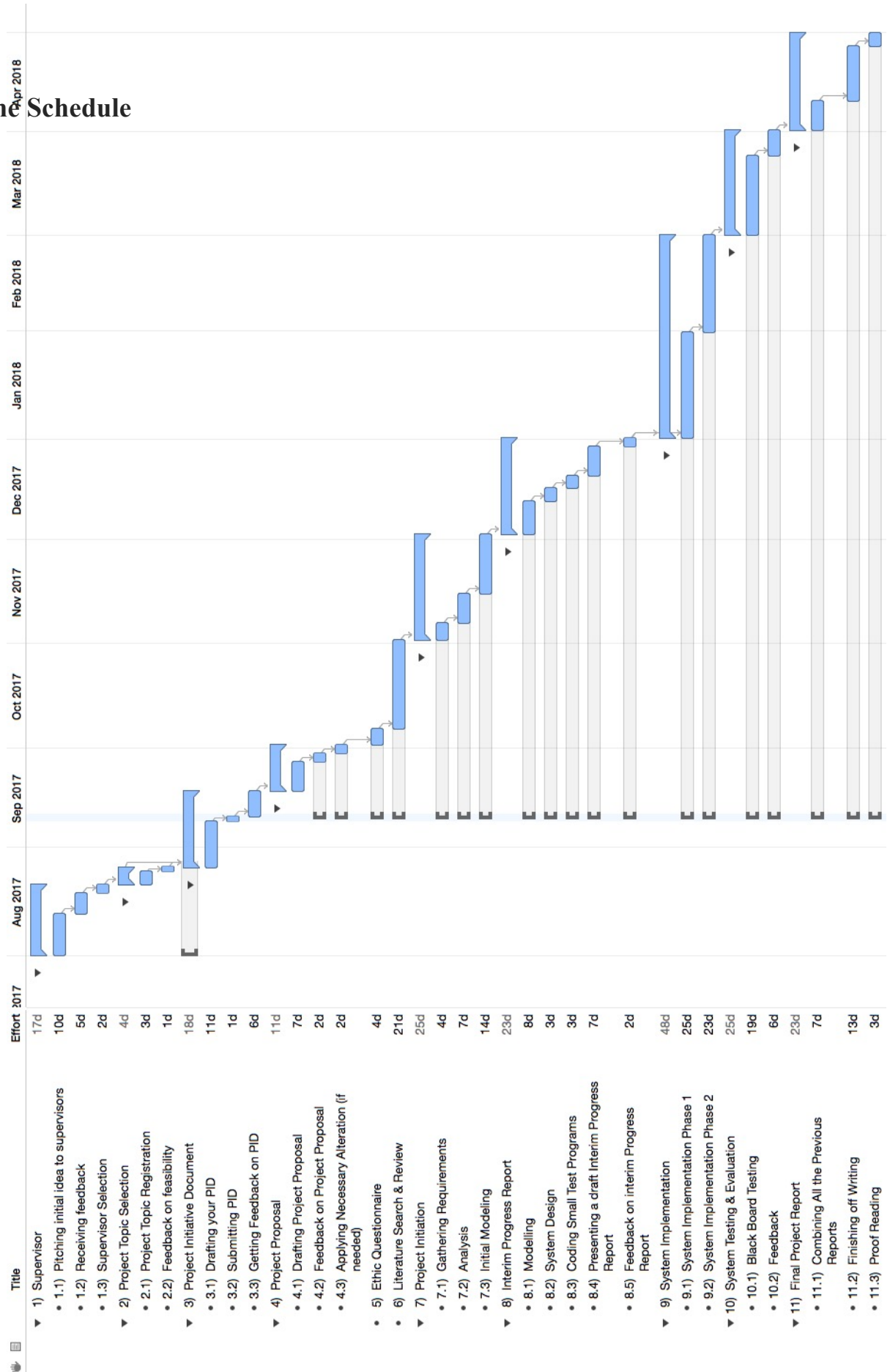Hardware Requirements

Project Management

Work Breakdown Structure
Gantt Chart
Risk and Mitigations

Web browser (Chrome Preferred)
Average Computer (i3 Processor)

Time Schedule

Title	Effort 2017
1) Supervisor	17d
1.1) Pitching initial idea to supervisors	10d
1.2) Receiving feedback	5d
1.3) Supervisor Selection	2d
2) Project Topic Selection	4d
2.1) Project Topic Registration	3d
2.2) Feedback on feasibility	1d
3) Project Initiative Document	18d
3.1) Drafting your PID	11d
3.2) Submitting PID	1d
3.3) Getting Feedback on PID	6d
4) Project Proposal	11d
4.1) Drafting Project Proposal	7d
4.2) Feedback on Project Proposal	2d
4.3) Applying Necessary Alteration (if needed)	2d
5) Ethic Questionnaire	4d
6) Literature Search & Review	21d
7) Project Initiation	25d
7.1) Gathering Requirements	4d
7.2) Analysis	7d
7.3) Initial Modeling	14d
8) Interim Progress Report	23d
8.1) Modelling	8d
8.2) System Design	3d
8.3) Coding Small Test Programs	3d
8.4) Presenting a draft Interim Progress Report	7d
8.5) Feedback on interim Progress Report	2d
9) System Implementation	48d
9.1) System Implementation Phase 1	25d
9.2) System Implementation Phase 2	23d
10) System Testing & Evaluation	25d
10.1) Black Board Testing	19d
10.2) Feedback	6d
11) Final Project Report	23d
11.1) Combining All the Previous Reports	7d
11.2) Finishing off Writing	13d
11.3) Proof Reading	3d

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